

CLAIMS

1. A device for aligning the knots or wire ends at the end rings of springs (7) with the transport of springs (7) from a spring winding machine to a spring interior assembly automatic machine with a transport star (1), whose gripper hands (5) take over the springs (7) at the winding station of the spring winding machine and with a pair of transport belts (13) for the further transport of the aligned springs (7) to the assembly automatic machine as well as with a transfer element (17, 19) for transferring the springs (7) from the transport star (1) to the transport belts (13), characterized in that the transfer element comprises at least one drivable pair of rotary plates (17) lying opposite one at a distance, whose common rotary axle (A) is revolvingly mounted at a distance to a central rotary axle (B).
2. A device according to claim 1, characterized in that the rotary plate pair (17) is drivable by a servo-motor (M_A) and that a spring (7) held clamped between the rotary plate pair (17) between the take-over by the transport star (1) at the take-over location (X) up to the transfer to the transport belt (13) at the transfer location (Y) may be transferred at any selectable rotary angle end position.
3. A device according to one of the claims 1 or 2, characterized in that the rotary plates (17) are synchronously rotatably mounted by at least two rotary plate pairs (17) in circular recesses (29) in two rotary disks (19) lying opposite one another, and are drivably mounted by a drive motor (M_A).
4. A device according to claim 3, characterized in that the rotary plates (17) mounted in the rotary disks (19) may be driven by the servo-motor (M_A) via a common toothed belt (31) and the rotary disks (19) are drivable by a further servo-motor (M_B) independently of one another.
5. A device according to one of the claims 1 to 4, characterized in that the springs (7) are insertable by a displacing finger (23) out of the gripper hand (5) on the rotary star (1) into a rotary plate pair (17) and may be transferred by at least one transfer finger (27) out of the rotary plate pair (17) between the belt faces (13') of the two revolving transport belts (13).

6. A device according to claim 5, characterized in that the springs (7) before removal from the gripper hand (5) are axially pressed together between two revolving tensioning and introduction plates (25) by the displacing finger (23).